Hunters Point cleanup standards vs. 12 mrem/year - DRAFT v7, 9/12/17

- In 2006, the Navy proposed, and EPA approved, radiological cleanup release criteria that were adopted in ROD's as Remedial Goals (RG's). Ra-226 is the primary Radionuclide of Concern at the site. EPA approved an RG of 1.0 pCi/g above background for Ra-226, which, using the current risk model, is a risk of roughly 0.7 X 10^{-5}or 3 mrem/yr. [1] Navy practice at the site has been to remediate any levels found above this RG, consistent with EPA national policy.[2]

- In June, 2014, EPA HQ estimated that a 3 X 10^{-4} risk corresponds to 12 mrem/yr (vs. previously 15 mrem/yr). The same guidance states that the 12 mrem/yr standard only sets out the number that EPA deems is sufficiently protective when EPA is evaluating a dosage-based ARAR, not when establishing a clean-up level.[3] Furthermore, that guidance also states that as a starting point for an original ROD, EPA policy is to "set cleanup goals at 1 X 10^{-6} risk, based on the EPA PRG (Preliminary Remediation Goal) calculator."[4] Over time, as science and policy may evolve, for the "upper end of the risk range . . . EPA generally uses 1 x 10^{-4} in making risk management decisions."[5]

- EPA HQ periodically changes the PRG calculator, and the 8/17, version estimates that 1 X 10^{-4} risk is equivalent to roughly 1.5 pCi/g for Ra-226 (vs. ROD RG of 1.0 pCi/g). See table below for more comparisons. These risk estimates assume a durable cover consistent with the Remedial Design. The durable cover was originally intended to address metals, not radiation.

- To change an RG would require a ROD amendment. Nationally, it is not common practice to change ROD RG's to become less protective, only more protective.

For Ra-226	Risk	Dose (mrem/yr)	Concentration (pCi/g)
EPA Policy: Set original cleanup goals	1 X 10^{-6}	0.04	0.015
ROD RG (based on 2006 Action Memo)	0.7 X 10^{-4}	3	1.0
EPA Policy: generally upper limit	1 X 10^{-4}	4	1.5
EPA Policy: For ARAR comparisons	3 X 10^{-4}	12	4.5

[1] Many of the numbers shown assume a linear relationship, which is an approximation to convey rough relationships, not exact values. The risk estimates vary slightly depending on the assumptions used in the model.

[2] OSWER Directive 9200.4-40, EPA 540-R-012-13, May 2014, Q3, p. 8: "EPA's Superfund remedial program general practice has been to use the NTE approach for soil where residential land use is assumed."

[3] Id., Q35, p. 28: "this ARAR evaluation tool should not be used as a to be considered (TBC) as a basis for establishing 12 mrem/yr cleanup levels at CERCLA remedial sites."

[4] Id., Q33, p. 27, and OSWER Directive 9200.4-18 (U.S. EPA 1997a): "cleanup levels not based on an ARAR should be based on the carcinogenic risk range (generally 10^-4 to 10^-6, with 10^-6 as the point of departure and 1 x 10^-6 used for PRGs."

[5] Id., Q34, p. 27: "Consistent with existing Agency guidance for the CERCLA remedial program, while the upper end of the risk range is not a discrete line at 1 x 10^-4, EPA generally uses 1 x 10^-4 in making risk management decisions. A specific risk estimate around 10^-4 may be considered acceptable based on site-specific circumstances."